AMENDMENTS TO THE CLAIMS

1. (Currently amended) System for guiding a catheter along a predetermined path through a lumen system of a body of a patient, to a predetermined location within the lumen system, the system comprising:

a medical positioning system including ~~at least one position~~ a detector~~, said at least one position detector being firmly~~ attached to a distal portion of said catheter, said medical positioning system determining the position of said ~~at least one position~~ detector as the catheter travels along the path through the lumen system;

a moving mechanism coupled with said catheter; and

a controller coupled with said medical positioning system and with said moving mechanism, for controlling the operation of said moving mechanism to automatically move said catheter along said predetermined path to said predetermined location, according to ~~said~~ the determined position ~~and according~~ of said detector relative to a topological representation of ~~at least a portion of said lumen system~~ the path.

2. (Currently amended) The system according to claim 1, further comprising:

an imaging system for detecting an image of ~~said at least one portion~~ the part of the lumen system having the path along which the catheter is to be guided; and

a superimposition processor coupled with said medical positioning system and with said imaging system and a display coupled with said superimposition processor, said superimposition processor superimposing a representation of said catheter distal portion on said image, to be displayed on ~~a~~ said display coupled with said ~~superimposition~~ processor.

3. (Currently amended) The system according to claim 1, wherein said superimposition processor superimposes a coordinate system on said topological representation on said image, to be displayed on said display.

4. (Currently amended) The system according to claim 2, wherein said display displays a curve respective of the shape of said catheter distal portion, according to ~~said~~ a coordinate ~~signal~~ system.

5. (Previously presented) The system according to claim 2, wherein said imaging system is selected from the list consisting of:

X-ray table;

fluoroscope;

C-arm imager;

computed tomography;

magnetic resonance imager;

positron emission tomography; and

ultrasound system.

6. (Previously presented) The system according to claim 1, further comprising an organ monitor coupled with a monitored organ of said body and with said medical positioning system, said monitored organ being coupled with said lumen system, said organ monitor monitoring an organ timing signal of said monitored organ and of said lumen system, wherein said controller updates said topological representation and said position, according to said organ timing signal; and

wherein said controller controls the operation of said moving mechanism according to at least one of an updated topological representation and an updated position of said distal portion.

7. (Currently amended) The system according to claim 6, further comprising a processor coupled with said medical positioning system, said processor updating said topological representation and a representation of said catheter distal portion according to said organ timing signal, said processor producing a reconstructed image of said at least one portion according to said organ timing signal, said processor superposing at least one of an updated topological representation and an updated representation of said distal portion on said reconstructed image, to be displayed on a display coupled with said processor.

8. (Previously presented) The system according to claim 6, wherein said organ monitor is selected from the list consisting of:

electrocardiogram; and

filtered MPS reading.

9. (Previously presented) The system according to claim 1, wherein said moving mechanism is disposable.

10. (Previously presented) The system according to claim 1, wherein said moving mechanism comprises:

at least one moving element;

a plurality of angular movement rollers coupled with said at least one moving element, said angular movement rollers twisting said catheter by a selected amount about a longitudinal axis of said catheter; and

a plurality of linear movement rollers coupled with said at least one moving element, said linear movement rollers moving said catheter along said longitudinal axis.

11. (Currently amended) The system according to claim ~~1~~10, further comprising a joystick coupled with said moving element for manually operating said moving mechanism.

12. (Currently amended) The system according to claim 1, wherein the coupling between said medical positioning system and said ~~at least one~~ position detector is selected from the list consisting of:

conductive; and

wireless.

13. (Previously Presented) The system according to claim 1, wherein said topological representation is a preplanned path between an origin and said predetermined location.

14. (Currently amended) The system according to claim 1, wherein said catheter ~~is in form of~~ comprises a guidewire.

15. (Previously presented) The system according to claim 1, wherein at least a portion of said catheter is made of an Electro Active Polymer.

16. (Currently amended) Method for guiding a catheter along a path to a predetermined location within a lumen system of a body of a patient, the method comprising the ~~procedures~~ steps of:

establishing a path in said lumen system from a topological representation of the lumen system;

determining a ~~new~~ first position ~~to move~~ of said catheter in said path ~~to,~~ according to a position signal received respective of ~~a~~ the first position of a distal portion of said catheter~~,~~ and also determining a new position to which said catheter is to be moved based on said determined first position and according to ~~a~~ said path topological representation ~~of said lumen system~~;

operating a moving mechanism to move said catheter to a second position, according to said new determined position;

receiving ~~said~~ a position signal as said catheter is moved during said operating step and ~~performing said operating procedure,~~ when said second position is substantially identical with said new determined position~~,~~ determining a further new positions on said path to which said catheter is to be moved and ~~determining at least one corrective movement,~~ when said second position is not identical with said new determined position~~; and~~ determining at least one corrective movement for said catheter; and

directing said moving mechanism to move said catheter according to said determined corrective movement.

17. (Cancelled)

18. (Currently amended) The method according to claim 16, further comprising the ~~procedures~~ steps of:

updating at least one of said topological representation, said first position and said second position, according to ~~according to~~ an organ timing signal of an organ timing monitor coupled with a monitored organ of said body, said monitored organ being coupled with said lumen system; and

controlling said moving mechanism according to at least one of said updated topological representation, said updated first position and said updated second position.

19. (Previously presented) The method according to claim 18, wherein said organ timing signal is selected from the list consisting of:

electrocardiogram; and

filtered MPS reading.

20. (Currently amended) The method according to claim 18, further comprising a preliminary ~~procedure~~ steps of receiving said organ timing signal.

21. (Currently amended) The method according to claim 20, further comprising a preliminary ~~procedure~~ steps of detecting said organ timing signal.

22. (Currently amended) The method according to claim 18, further comprising ~~the procedures of~~:

superposing a representation of at least one of said updated first position and said updated second position on an image of at least a portion of said lumen system; and

displaying said superposition.

23. (Currently amended) The method according to claim 22, further comprising the ~~procedures~~ steps of:

superposing said updated topological representation on said image; and

displaying said superposition of said updated topological representation on said image.

24. (Previously presented) The method according to claim 22, wherein said image is reconstructed according to said organ timing signal.

25. (Previously presented) The method according to claim 22, wherein said image is produced by an imaging system in real time.

26. (Currently amended) The method according to claim 22, wherein said displaying ~~procedure~~ steps includes ~~a sub procedure of~~ transforming a three-dimensional coordinate system of a medical positioning system for determining at least one of said first position and said second position, to a two-dimensional coordinate system of said image.

27. (Currently amended) The method according to claim 16, ~~further comprising a preliminary procedure of constructing~~ wherein said topological representation is produced~~,~~ by indicating an origin and a destination on an image of at least a portion of said lumen, in a coordinate system respective of said body.

28. (Previously presented) The method according to claim 27, wherein said image is produced by imaging said at least one portion, at least one unparallel imaging planes.

29. (Currently amended) The method according to claim 16, further comprising ~~a procedure of~~ imaging at least a portion of said lumen system at least one image plane which is closest to said predetermined path, among a plurality of other image planes.

30. (Currently amended) The method according to claim 16, further comprising ~~procedure of~~ imaging at least a portion of said lumen system at at least one other image plane, when in at least one prior image plane, at least a portion of at least one lumen system overlaps said lumen system.

31. (Currently amended) The method according to claim 16, further comprising ~~procedure of~~ determining the shape of said distal portion, according to a plurality of position signals

received respective of positions of a plurality of position detectors located at said distal portion, after performing said procedure of operating.

32. (Previously presented) The method according to claim 16, wherein said at least one corrective movement is selected from the list consisting of:

along a longitudinal axis of said catheter relative to at least a portion of said lumen; and

about said longitudinal axis relative to said at least one portion.

33. (Previously presented) The method according to claim 16, wherein said at least one corrective movement is determined, when the orientation of said distal portion at a certain location within said lumen system, is different than at least one slope of said three-dimensional path at said certain location.

34. (New) The system according to claim 10, wherein said moving mechanism angular and linear movement rollers engage ~~the~~ a proximal part of said catheter.